Service Schematics



RM-200

Introduction

IMPORTANT:

This document is intended for use by authorized NOKIA service centers only.

“Service Schematics” was created with focus on customer care.
The purpose of this document is to provide further technical repair information for NOKIA mobile phones on Level 3/4 service activities.
It contains additional information such as e.g. “Component finder”.
The “Signal overview” page gives a good and fast overview about the most important signals and voltages on board.
Saving process time and improving the repair quality is the aim of this document.
It is to be used additionally to the service manual and other training or service information such as Service Bulletins.

All measurements were made using following equipment:

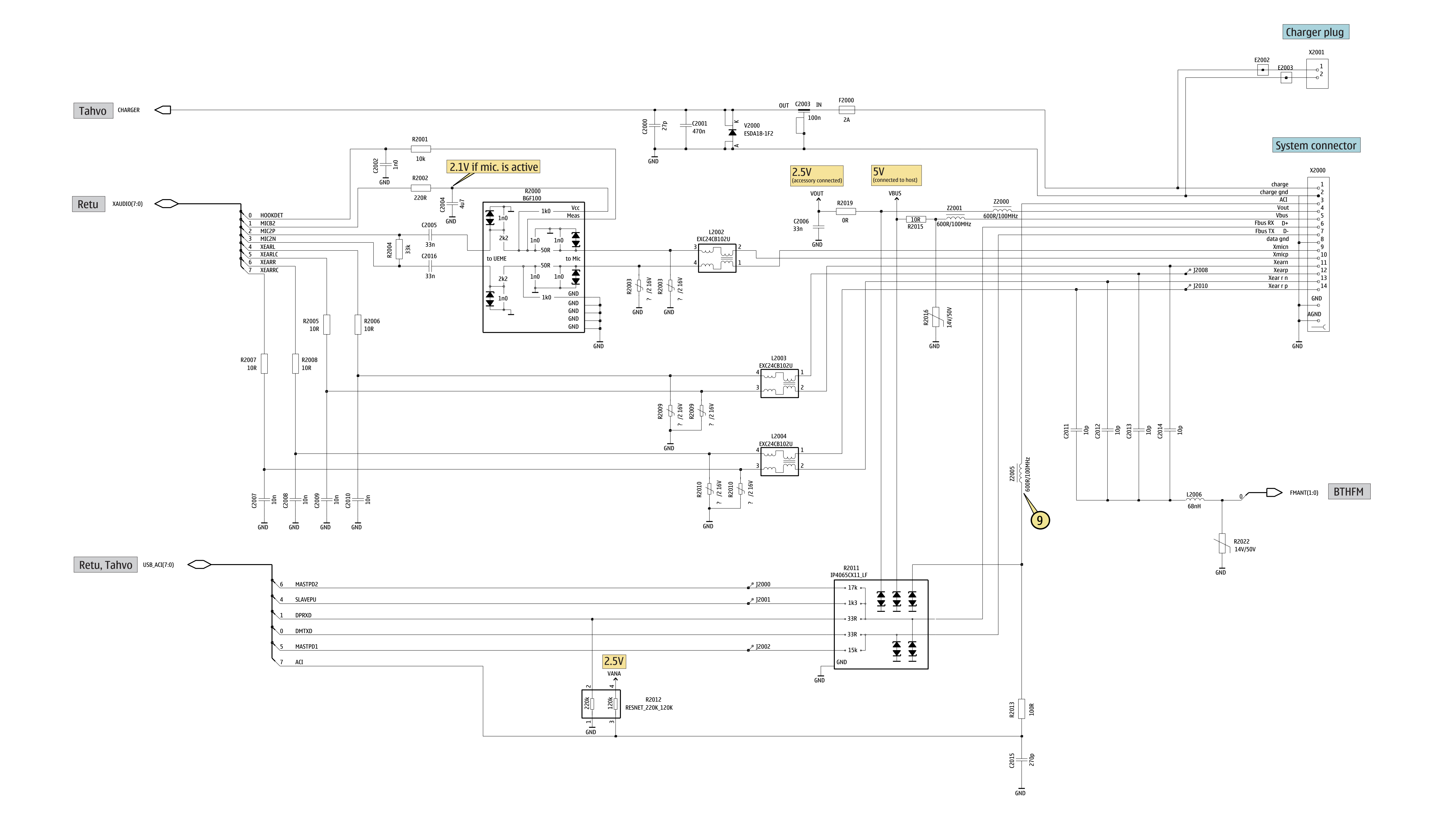
Nokia repair SW	: Phoenix version 2006.20.9.148
Oscilloscope	: Fluke PM 3380A/B
Spectrum Analyzer	: Advantest R3162 with an analog probe
RF-Generator / GSM Tester	: Rhode & Schwarz CMU 200
Multimeter	: Fluke 73 Series II

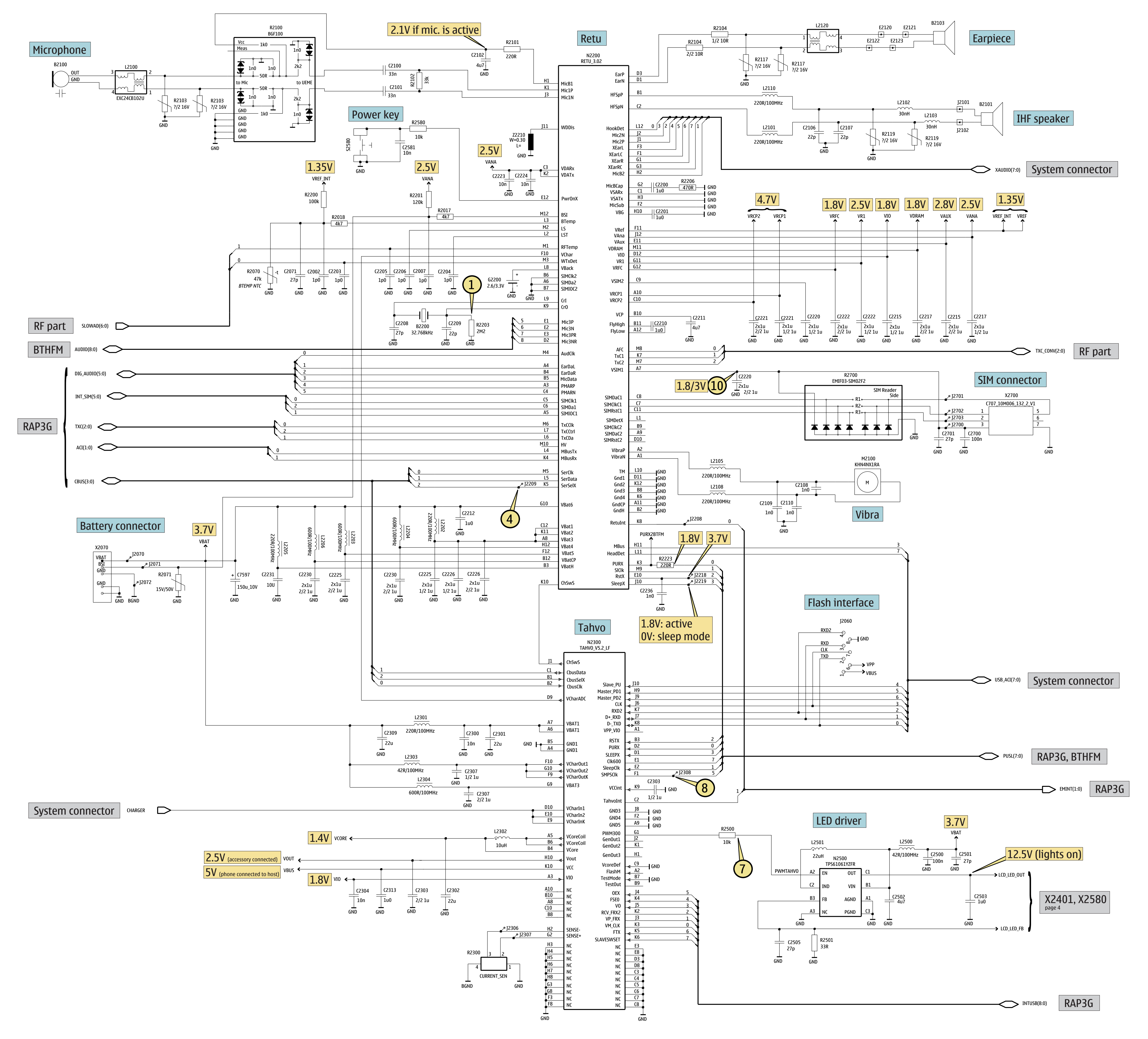
While every endeavour has been made to ensure the accuracy of this document, some errors may exist. If the reader finds any errors, NOKIA shall be notified in writing.

Please send E-Mail to: training.sace@nokia.com

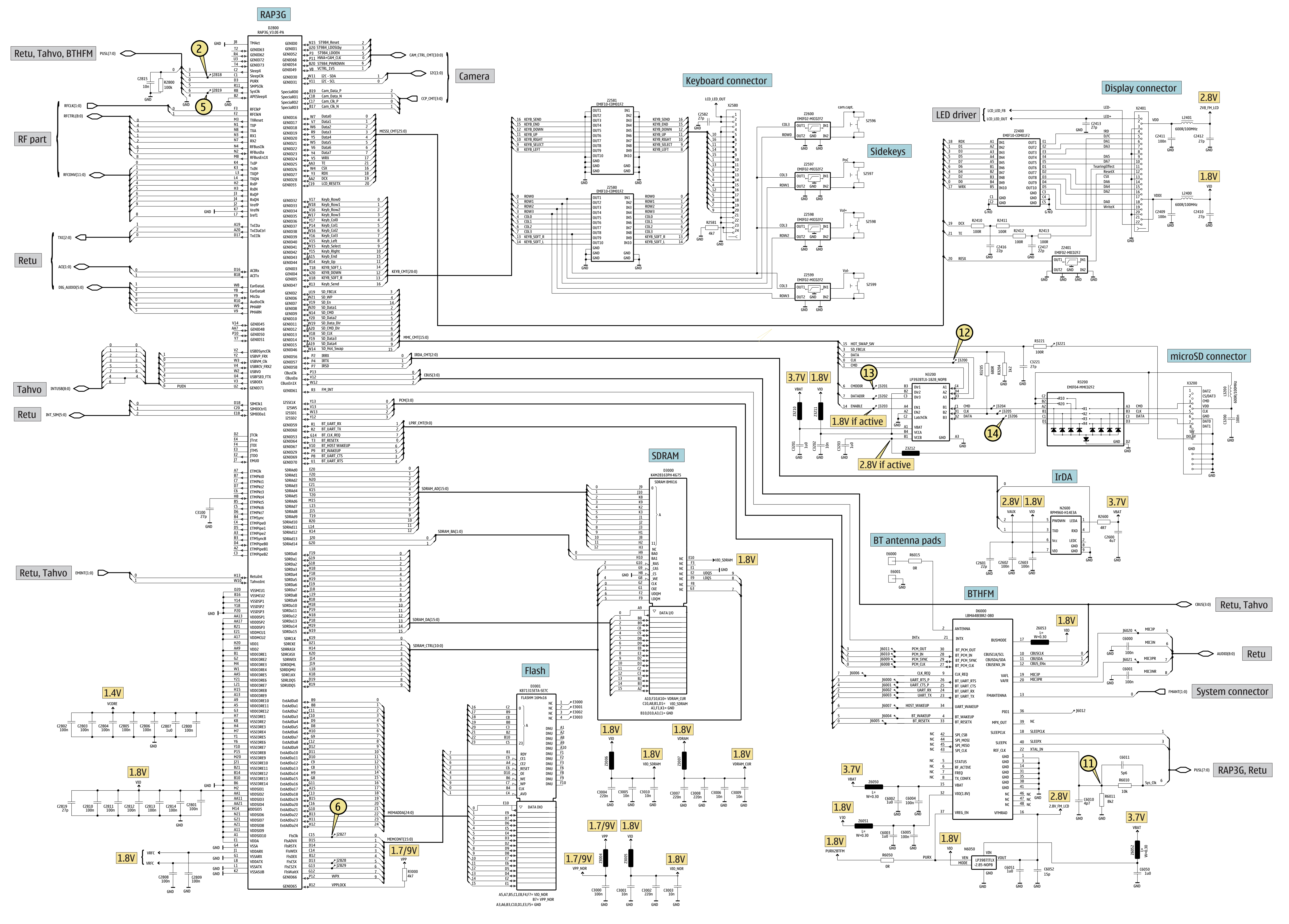


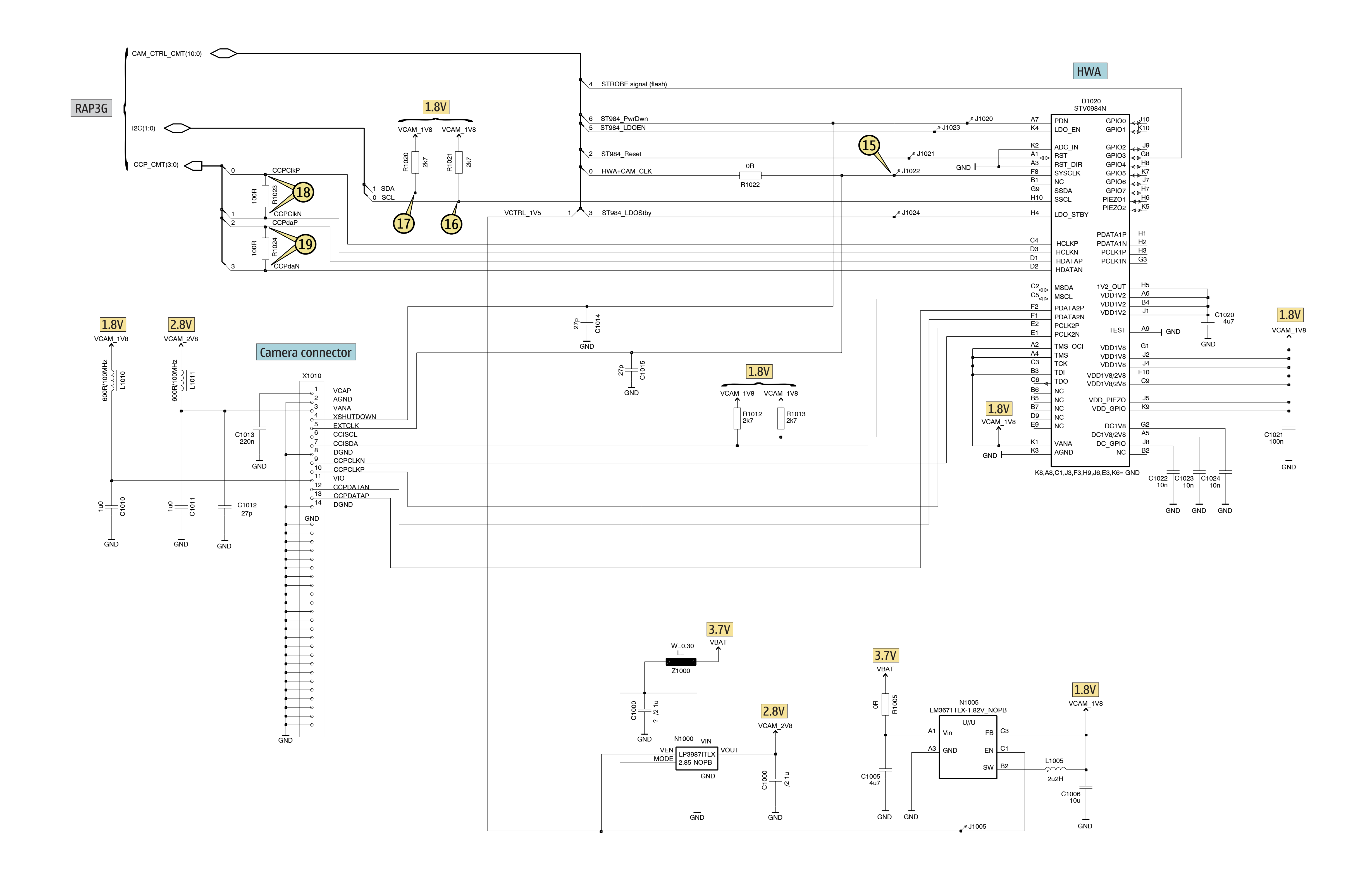
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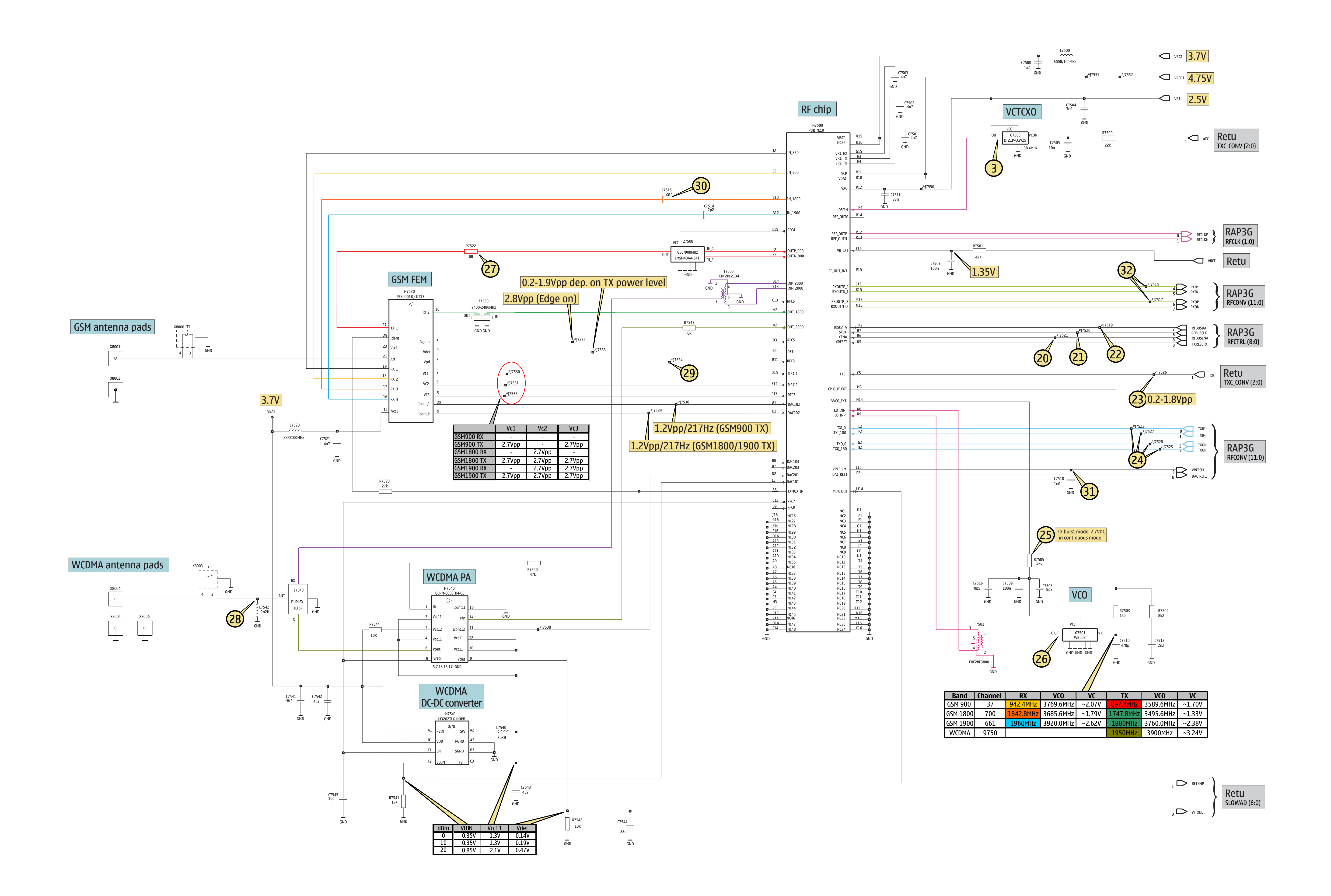

Charger plug
System connector
Tahvo
Retu
Retu, Tahvo
BTHFM
2.1V if mic. is active
2.5V
(accessory connected)
5V
(connected to host)
2.5V
CHARGER
XAUDIO(7:0)
USB_ACI(7:0)
FMANT(1:0)
HOOKDET
MICB2
MIC2P
MIC2N
XEARL
XEARLC
XEARR
XEARRC
MASTPD2
SLAVEPU
DPRXD
DMTXD
MASTPD1
ACI
R2000
BGF100
to UEME
to Mic
L2002
EXC24CB102U
L2003
EXC24CB102U
L2004
EXC24CB102U
R2011
IP4065CX11_LF
R2012
RESNET_220K_120K
X2000
X2001
charge
charge gnd
ACI
Vout
Vbus
Fbus RX D+
Fbus TX D-
data gnd
Xmicn
Xmicp
Xearn
Xearp
Xear r n
Xear r p
GND
AGND
VOUT
VBUS
VANA
9



Microphone
2.1V if mic. is active
Retu
Earpiece
Power key
IHF speaker
System connector
1.35V
2.5V
2.5V
4.7V
1.8V
2.5V
1.8V
1.8V
2.8V
2.5V
1.35V
RF part
BTHFM
RF part
1.8/3V
SIM connector
RAP3G
Vibra
Battery connector
3.7V
1.8V
3.7V
1.8V: active
0V: sleep mode
Tahvo
Flash interface
System connector
RAP3G, BTHFM
RAP3G
System connector
LED driver
3.7V
12.5V (lights on)
1.4V
2.5V (accessory connected)
5V (phone connected to host)
1.8V
X2401, X2580
RAP3G


RAP3G
Retu, Tahvo, BTHFM
Camera
Keyboard connector
Display connector
LED driver
Sidekeys
RF part
Retu
Tahvo
Retu
microSD connector
3.7V
1.8V
1.8V if active
2.8V if active
2.8V
1.8V
SDRAM
IrDA
2.8V
1.8V
3.7V
BT antenna pads
1.8V
BTHFM
Retu, Tahvo
Retu, Tahvo
Retu
System connector
Flash
1.4V
1.8V
1.8V
1.8V
1.8V
1.8V
1.8V
1.7/9V
1.8V
1.7/9V
1.7/9V
1.8V
3.7V
1.8V
1.8V
1.8V
2.8V
3.7V
RAP3G, Retu

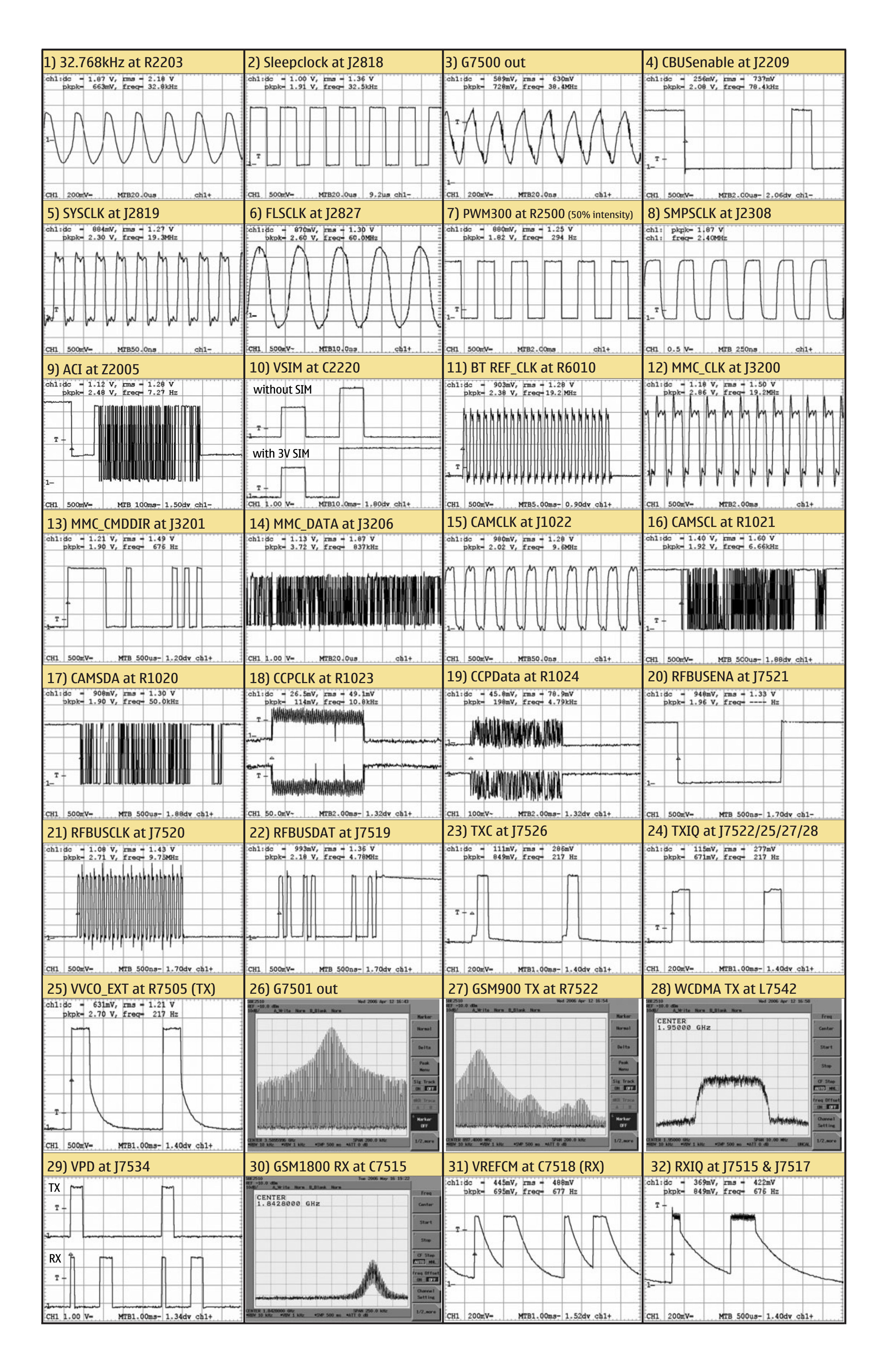

RAP3G
CAM_CTRL_CMT(10:0)
I2C(1:0)
CCP_CMT(3:0)
1.8V
VCAM_1V8
R1020
R1021
2k7
STROBE signal (flash)
ST984_PwrDwn
ST984_LDOEN
ST984_Reset
HWA+CAM_CLK
0R
R1022
ST984_LDOStby
VCTRL_1V5
SDA
SCL
CCPClkP
CCPClkN
CCPdaP
CCPdaN
100R
R1023
R1024
HWA
D1020
STV0984N
J1020
J1023
J1021
J1022
J1024
GND
PDN
LDO_EN
ADC_IN
RST
RST_DIR
SYSCLK
NC
SSDA
SSCL
LDO_STBY
HCLKP
HCLKN
HDATAP
HDATAN
MSDA
MSCL
PDATA2P
PDATA2N
PCLK2P
PCLK2N
TMS_OCI
TMS
TCK
TDI
TDO
VANA
AGND
GPIO0
GPIO1
GPIO2
GPIO3
GPIO4
GPIO5
GPIO6
GPIO7
PIEZO1
PIEZO2
PDATA1P
PDATA1N
PCLK1P
PCLK1N
1V2_OUT
VDD1V2
TEST
VDD1V8
VDD1V8/2V8
VDD_PIEZO
VDD_GPIO
DC1V8
DC1V8/2V8
DC_GPIO
K8,A8,C1,J3,F3,H9,J6,E3,K6= GND
C1020
4u7
C1021
100n
C1022
C1023
C1024
10n
C1014
C1015
27p
Camera connector
X1010
VCAP
AGND
VANA
XSHUTDOWN
EXTCLK
CCISCL
CCISDA
DGND
CCPCLKN
CCPCLKP
VIO
CCPDATAN
CCPDATAP
DGND
2.8V
VCAM_2V8
600R/100MHz
L1010
L1011
C1010
C1011
1u0
C1012
C1013
220n
R1012
R1013
3.7V
VBAT
W=0.30
L=
Z1000
C1000
N1000
LP3987ITLX
-2.85-NOPB
VIN
VEN
MODE
VOUT
R1005
N1005
LM3671TLX-1.82V_NOPB
Vin
FB
EN
SW
C1005
4u7
L1005
2u2H
C1006
10u
J1005



	Vc1	Vc2	Vc3
GSM900 RX	-	-	-
GSM900 TX	2.7Vpp	-	2.7Vpp
GSM1800 RX	-	2.7Vpp	-
GSM1800 TX	2.7Vpp	2.7Vpp	2.7Vpp
GSM1900 RX	-	2.7Vpp	2.7Vpp
GSM1900 TX	2.7Vpp	2.7Vpp	2.7Vpp

Band	Channel	RX	VCO	VC	TX	VCO	VC
GSM 900	37	942.4MHz	3769.6MHz	~2.07V	897.4MHz	3589.6MHz	~1.70V
GSM 1800	700	1842.8MHz	3685.6MHz	~1.79V	1747.8MHz	3495.6MHz	~1.33V
GSM 1900	661	1960MHz	3920.0MHz	~2.62V	1880MHz	3760.0MHz	~2.38V
WCDMA	9750				1950MHz	3900MHz	~3.24V

dBm	VCON	Vcc11	Vdet
0	0.35V	1.3V	0.14V
10	0.35V	1.3V	0.19V
20	0.85V	2.1V	0.47V



VCAM_2V8 2.8V
VREF 1.35V
VBAT 3.7V
VR1 2.5V
VAUX 2.5V
VRFC 1.8V
VIO 1.8V
VANA 2.5V
VDRAM 1.8V
VRCP1/2 4.75V
VSIM 1.8/3V
VBUS 5V
VOUT 2.5V
VCORE 1.4V
VMMC 2.8V
VLED 12.5V
VCAM_1V8 1.8V
V_FM_LCD 2.8V

B		C2804	K2	J2218	I8	L2302	F4	R7543	P6
B2200	I7	C2805	I2	J2219	I7	L2303	G6	R7544	P8
C		C2806	I3	J2306	H4	L2304	H5	R7547	N5
C1000	N8	C2807	I2	J2307	G4	L2400	I5	**S**	
C1005	G7	C2808	J2	J2308	G4	L2401	H6	S2580	T7
C1006	F7	C2809	J2	J2700	E8	L2500	F5	S2596	D9
C1010	L6	C2810	L2	J2701	E8	L2501	E5	S2597	R2
C1011	M8	C2811	K4	J2702	E8	L3200	G2	S2598	S9
C1012	M8	C2812	J4	J2703	E8	L7500	N3	S2599	P9
C1013	L8	C2813	K4	J2818	I2	L7520	R5	**T**	
C1014	N8	C2814	I3	J2819	K2	L7540	R7	T7500	P4
C1015	N8	C2815	J2	J2827	I3	L7542	P7	T7501	M4
C1020	E7	C2819	L2	J2828	I3	**M**		**V**	
C1021	F7	C3000	H4	J2829	I3	M2100	B7	V2000	B3
C1022	D8	C3001	H4	J3100	M2	**N**		**X**	
C1023	E7	C3002	H2	J3101	N2	N1000	M8	X1010	M7
C1024	D8	C3003	H2	J3102	N2	N1005	F7	X2000	A6
C2000	B3	C3004	I6	J3103	N2	N2200	I8	X2061	F3
C2001	C3	C3005	I6	J3104	M2	N2300	G5	X2070	K7
C2002	B6	C3006	I4	J3105	M2	N2500	E6	X2401	I6
C2003	C3	C3007	J5	J3110	M2	N2600	M9	X2580	C5
C2004	B5	C3008	I4	J3111	L2	N3200	F2	X2700	D8
C2005	A5	C3009	J5	J3112	M3	N6050	E4	X3200	D3
C2006	D5	C3010	I4	J3113	M3	N7500	O4	X8000	R2
C2007	B7	C3100	K2	J3114	L3	N7520	Q4	X8001	T2
C2008	B8	C3200	G2	J3115	M3	N7540	Q7	X8002	T2
C2009	A6	C3201	G2	J3116	M3	N7541	R7	X8003	S8
C2010	B7	C3202	G3	J3117	M3	**R**		X8004	R9
C2011	B8	C3203	G2	J3118	N2	R1005	F7	X8005	R9
C2012	B7	C3221	E5	J3119	N3	R1012	D7	X8006	T3
C2013	B7	C6000	E3	J3120	M2	R1013	E7	X8010	I2
C2014	B6	C6001	E3	J3200	F3	R1020	F8	X8011	I8
C2015	A4	C6002	D4	J3201	F3	R1021	F8	X8012	B2
C2016	A5	C6003	D2	J3202	F3	R1022	F8	X8013	B8
C2071	D6	C6004	D4	J3203	F3	R1023	I4	**Z**	
C2100	G7	C6005	D2	J3204	F2	R1024	I4	Z1000	N8
C2101	G7	C6010	E3	J3205	F2	R2000	A5	Z2000	A4
C2102	H6	C6011	E2	J3206	F2	R2001	B6	Z2001	B5
C2106	H9	C6050	E4	J3221	F5	R2002	B5	Z2005	B4
C2107	H9	C6051	E3	J6000	E2	R2003	A6	Z2210	G7
C2108	B6	C6052	E4	J6001	E2	R2004	A5	Z2400	I5
C2109	H9	C7500	O3	J6002	E2	R2005	A7	Z2401	I8
C2110	H9	C7501	M5	J6003	E2	R2006	A7	Z2580	D6
C2200	G7	C7502	M5	J6004	C3	R2007	A7	Z2581	D5
C2201	J6	C7503	O3	J6005	D2	R2008	A7	Z2597	Q2
C2202	H6	C7504	M5	J6006	C3	R2009	A7	Z2598	T9
C2203	I7	C7505	M5	J6007	C2	R2010	A8	Z2599	P9
C2204	H7	C7507	P3	J6008	E2	R2011	B4	Z2600	C9
C2205	H7	C7508	M3	J6009	E2	R2012	A4	Z3004	H4
C2206	H7	C7509	M3	J6010	E2	R2013	A4	Z3005	H2
C2207	J7	C7510	M4	J6011	E2	R2015	B5	Z3006	J6
C2208	I6	C7511	N3	J6012	C3	R2016	B5	Z3007	J6
C2209	I6	C7512	M4	J6020	F8	R2017	J7	Z3210	G2
C2210	I9	C7514	P4	J6021	F8	R2018	H7	Z3211	G3
C2211	I9	C7515	P4	J7515	O4	R2019	D5	Z3212	G2
C2212	J8	C7516	M3	J7517	N4	R2022	B6	Z6050	D4
C2215	J8	C7518	K2	J7519	N5	R2070	C6	Z6051	E2
C2217	J7	C7521	R5	J7520	N4	R2071	J7	Z6052	E4
C2220	I9	C7541	Q7	J7521	N5	R2100	G6	Z6053	D4
C2221	I9	C7542	R7	J7522	O5	R2101	H6	Z7500	P5
C2222	J8	C7543	Q7	J7525	O5	R2102	G7	Z7520	Q3
C2223	H8	C7544	P6	J7526	O5	R2103	B6	Z7540	P7
C2224	H7	C7545	P7	J7527	O5	R2104	G9		
C2225	J8	C7597	M3	J7528	O5	R2117	S7		
C2226	J8	**D**		J7529	Q4	R2119	M2		
C2230	J7	D1020	E8	J7530	Q4	R2200	H7		
C2231	H8	D2800	K3	J7531	Q4	R2201	J7		
C2236	J8	D3000	I5	J7532	Q4	R2203	I6		
C2300	G2	D3001	H3	J7533	Q4	R2206	G8		
C2301	F2	D6000	D3	J7534	O4	R2223	H7		
C2302	F3	**F**		J7535	Q5	R2300	K7		
C2303	H6	F2000	B3	J7536	Q5	R2410	H7		
C2304	F4	**G**		J7537	O5	R2411	H6		
C2307	G6	G2200	L8	J7538	Q7	R2412	H7		
C2309	F3	G7500	M5	J7550	N3	R2413	H7		
C2313	H5	G7501	M4	J7551	I9	R2500	E6		
C2409	I5	**J**		J7552	I9	R2501	E6		
C2410	I5	J1000	P2	J7553	O4	R2580	T7		
C2411	H6	J1001	Q2	**L**		R2581	C4		
C2412	H6	J1002	P2	L1005	F8	R2600	O9		
C2413	H6	J1003	O2	L1010	L6	R2700	E8		
C2416	H6	J1005	F7	L1011	M8	R2800	I2		
C2417	H7	J1020	E7	L2002	A6	R3000	H4		
C2500	F5	J1021	D7	L2003	B7	R3200	F2		
C2501	F5	J1022	F8	L2004	B8	R3204	G2		
C2502	F6	J1023	F8	L2006	B6	R3205	F2		
C2503	F6	J1024	D7	L2100	B5	R3221	E5		
C2505	E6	J2000	H5	L2101	H9	R6010	E2		
C2581	T7	J2001	H5	L2102	M2	R6011	E3		
C2582	D5	J2002	H5	L2103	N2	R6015	C2		
C2600	O9	J2008	B7	L2105	H9	R6050	H7		
C2601	M9	J2010	B7	L2108	H9	R7500	M5		
C2602	M9	J2060	G8	L2110	H9	R7501	P3		
C2603	M9	J2067	H6	L2120	S7	R7503	M4		
C2700	E8	J2070	L5	L2202	J9	R7504	M5		
C2701	E8	J2071	K5	L2203	J8	R7505	N4		
C2800	J4	J2072	K5	L2204	J7	R7520	Q5		
C2801	J2	J2101	L2	L2205	G8	R7522	Q5		
C2802	K4	J2102	N2	L2206	J7	R7540	Q5		
C2803	J2	J2209	H6	L2301	F2	R7541	R6		

